George C. Marshall Space Flight Center
Marshall Space Flight Center, Alabama 35812

DOCUMENT NUMBER ED34-OWI-022
BASELINE
MAY 23, 1999

ORGANIZATIONAL WORK INSTRUCTION

NONMETALLIC MATERIALS AND PROCESSES GROUP/ED34

OPERATION PROCEDURE FOR THE LARGE DESPATCH OVEN

BASELINE

CHECK THE MASTER LIST—
VERIFY THAT THIS IS THE CORRECT VERSION BEFORE USE

DOCUMENT HISTORY LOG

Status (Baseline/ Revision/ Canceled)	Document Revision	Effective Date	Description
Baseline		05/23/99	Document converted from EH33-OWI-008, Rev. A. Previous history retained in system as part of canceled or superseded ISO Document files. A full review of EH33-OWI-008, Rev. A was made and is part of the baseline issuance of this instruction.

OPERATION PROCEDURE FOR LARGE DESPATCH OVEN

APPROVAL:

_____

John H. Vickers
Leader
Composites Processes and
Fabrication Team

_____

Raymond G. Clinton
Leader
Nonmetallic Materials and
Processes Group

_____

Ann F. Whitaker
Manager
Materials, Processes, and
Manufacturing Department

_____

Dennis S. Davis
Leader
Industrial Safety Office

_____

Greg Smith
Industrial Hygienist
AJT

TABLE OF CONTENTS

OPERATION PROCEDURE FOR THE LARGE DESPATCH OVEN

1. SCOPE

1.1 Scope. This Organizational Work Instruction describes detailed information and instructions for the operation of the Large Despatch Oven. The Large Despatch Oven is located at the Northwest High Bay in Building 4707 of the Productivity Enhancement Complex, Marshall Space Flight Center.

1.2 Purpose. These instructions address the normal operating procedures for the Large Despatch Oven as well as the emergency shut down procedures and safety precautions.

1.3 Applicability. ISO 9000 requirements apply to this instruction only to the extent that activities performed herein are “in-scope” as defined by the Marshall Management Manual.

2. APPLICABLE DOCUMENTS

1. Marshall Management Manual (MPD 1280.1)
2. General Procedure for Programming Molyteks
3. MSFC Industrial Safety Procedures and Guidelines (MPG 1700.1)

3. DEFINITIONS

None

4. SAFETY PRECAUTIONS AND WARNING NOTES

4.1 SAFETY

It will be the Lead Engineer/Technician's responsibility to:

- Allow only trained personnel to operate the Despatch oven controls. Careless or unsafe operation of this oven may result in the suspension of the operator’s authorization.
- Provide access to work area.
- Assure that adequate supplies (worker protective equipment, fire extinguishers, recorder paper, etc.) are available.

NUMBERS TO CALL IN CASE OF EMERGENCY:

Ambulance/Fire/Security/Chemical Spills	**911**
Medical Center	**4-2390**
NASA Facilities (Utilities)	**4-3919**
NASA Safety Office	**4-0046**

4.2 EMERGENCY PROCEDURE

PROBLEM	CORRECTIVE ACTION
1.If you are trapped inside the oven chamber:	a. Pull the emergency alarm chain located in the NW corner. This will sound an alarm and terminate the oven operation. Open the left door by opening all handvalves located on the west interior wall of the chamber.
2.If fire occurs inside the oven.	a. Place the Main Power disconnect in the 'OFF' position. b. Evacuate the area. c. Call the fire department at 911.

5.0 INSTRUCTIONS

5.1 PREOPERATIONAL INSPECTION

Before the oven can be started, a visual inspection of the oven and its supporting subsystems must be completed. Any discrepancies must be reported to the ED34 Lead Engineer for disposition. Complete the Preoperational Inspection Sheet (see example in Appendix A) located in the Oven Usage Log Book on top of the controller. Before operating the system, the operator should read and understand the entire manual.

5.2 OPERATING INSTRUCTIONS

NOTE: Before operating the oven and/or its subsystems, always check to verify that no obstructions or personnel are in the path of the oven doors and equipment platform. Always use the "buddy system" (one person watches the doors and equipment platform while another person operates the controls) while operating the oven doors and equipment platform.

5.2.1 PREPARING FOR START CYCLE

1. Place Main Power (PWR) disconnect located on the top right hand corner of the control panel in the ‘ON’ position.
2. Push the ‘PWR ON’ switch (green light will come on).

WARNING: When operating the oven door and the equipment platform utilize the "buddy system."

3. Completely open the right oven door by turning the right door handvalve in the clockwise direction.
4. Completely open the left oven door by turning the left door handvalve in the clockwise direction.
5. When both doors have been completely opened, turn the equipment platform switch to the ‘OUT’ position until desired platform position has been obtained.
6. Turn on the interior oven lights. The switch is located on NW corner of the oven.
7. Place the part on the equipment platform.

WARNING: When operating the oven door and the equipment platform utilize the "buddy system."

8. After part has been loaded, turn the equipment platform switch to the ‘IN’ position to return the platform into the oven.
9. Connect the thermocouple wires, vacuum lines, missile grade air, etc. to the part.
10. Completely close the left oven door by turning the left door handvalve in the counterclockwise direction.
11. Completely close the right oven door by turning the right door handvalve in the counterclockwise direction.

NOTE: If the doors are opened during a heating operation, the heat will be interrupted until the doors are closed.

5.2.2 PROGRAMMING THE OMRON CONTROLLER

Refer to the Omron controller operating instructions located in the Usage Log Book.

5.2.3 PROGRAMMING THE MOLYTEK CHART RECORDER

1. Program the Molytek Chart Recorder per General Procedure Programming for Molytek's located in the Usage Log Book.

5.2.4 START CYCLE PROCEDURE

1. Set the Overtemp Monitor for the desired overtemp heater cutoff temperature.

NOTE: If an overtemp condition occurs, an audible alarm will sound and the heaters will deactivate. To silence the audible alarm, push the "Overtemp Alarm" switch.

2. Activate Fan #1 by turning the Fan #1 Switch located on the control panel in the 'ON' position. Wait 30 seconds for cycling.
3. Activate Fan #2 by placing the Fan #2 Switch located on the control panel in the 'ON' position. Wait 30 seconds for cycling.

NOTE: Listen to the V-belts driving the fans for excessive slipping. If there are any problem with this oven, notify the ED34 lead engineer. Heater will not operate if fans are not on.

4. Activate the heaters by placing the heaters switch located on the control panel in the 'ON' position.

5.3 MONITORING THE OVEN

Monitor the cure throughout the cycle to verify proper operation.

Note: The oven will continue to operate until the controller's cure cycle is complete. Data acquisition will continue on the Molytek recorder. A single operator may perform the monitoring function during regular working hours

if periodic contact (verbal or visual) is established between the lone operator and other employees to ensure the

operator's safety. **A minimum of two operators are required to monitor the oven during overtime hours.**

5.4 SHUTDOWN PROCEDURE

1. When the cure cycle has completed, refer to the Omron Controller procedure to stop the controller.
2. Place the heater switch in the 'OFF' position to deactivate the heaters.
3. Turn off Fan #1 and Fan #2. The switches are located on the control panel.

WARNING: When operating the oven door and the equipment platform utilize the "buddy system. "

4. Completely open the right oven door by turning the right door handvalve in the clockwise direction.
5. Completely open the left oven door by turning the left door handvalve in the clockwise direction.
6. Disconnect all thermocouple wires, vacuum lines, missile grade air connections, etc. from the part.
7. When the oven doors are completely open, turn the equipment platform switch to the 'OUT' position until the desired platform position has been obtained.
8. Remove the part from the platform.
9. Verify that the part has been removed from the platform. Turn the equipment platform switch to the 'IN' position until the desired platform position has been obtained.
10. Verify that the platform is positioned in the oven. Turn the left door handvalve in the counterclockwise direction and completely close the left door.
11. Turn the right door handvalve in the counterclockwise direction and completely close the right door.
12. Place the Main Power disconnect in the 'OFF' position.
13. Verify that the oven and its subsystems are completely off.
14. Perform the post operational inspection sheet(see example in Appendix A) located in the Oven Usage Log Book.
15. Complete the cure cycle information form located in the Oven Usage Log Book.
16. If this is a cure for in-scope work, refer to section 8 for instructions on Quality Records.

6. NOTES

Observe notes as called out in “5. INSTRUCTIONS“(Operation Procedure for the Large Despatch Oven).

7. APPENDICES, DATA, REPORTS AND FORMS

Appendix A: Despatch Oven Data Sheets

8. QUALITY RECORDS

Quality records for this system will be maintained for all in-scope work by ED34 for the duration of the project plus three years. **If a cure is part of an in-scope project, the operator is responsible for completing the following list:**

a. Make two(2) copies of each of the following:
   1. Large Despatch Oven Preoperational Inspection Sheet
   2. Large Despatch Oven Post-Operational Inspection Sheet
   3. Large Despatch Oven Data Log User Form

b. Give one copy to the lead engineer for in-scope project.

c. Give second copy to the applicable ED34 Management Support Assistant.

d. Return the original’s to the User’s Log Book located on top of the controller.

Training Records and Calibration Lists associated with in-scope work will also be maintained by ED34 and the Employee & Organizational Development Office (Training). Training records will be maintained as long as the employee is performing in-scope work. Calibration records will be maintained and replaced only with current information.

All Quality Records, if applicable, will be maintained by ED34.

9. TOOLS, EQUIPMENT, AND MATERIALS

None

10. PERSONNEL TRAINING

Any personnel using this system must be authorized by ED34. A list of trained users is maintained by ED34 and the Employee & Organizational Development Office (Training). The requirements for training are listed below. Authorization will be given by ED34 after completion of all training requirements.

Current oven training consists of the completion of the following curriculum:

a. Training for Overhead Crane Operations, Fork Truck Operations, and Fire Extinguisher Training must be certified by the Industrial Safety Office (as required) and Training Record of the trained users handling the equipment must be maintained by ED34 and the Employee & Organizational Development Office(Training).

b. Once the above curriculum has been completed, the trainee must complete On the Job Training (OJT) for a minimum of four oven cures. Additional OJT may be required until trainee demonstrates safe and proficient operation of the equipment, and understanding of the proper safety procedures associated. The training may be performed by any trained operator, however, approval of any training session must be authorized by ED34. Contact the ED34 Lead Engineer prior to the fourth OJT cure. A final audit for the training process will be performed at this time.

For all newly trained contractor employees, ED34 must have on file, a memo from the employee's supervisor stating that the employee has completed all requirements called out in this instruction for training to operate this equipment. Once the memo has been received by ED34, approval will be given following review.

11. FLOW DIAGRAM

None

Appendix A
Despatch Oven Data Sheets

Preoperational Inspection Sheet

Date: _____
Cycle: _____

		Operator Initials:
A.	Verify that the proper safety equipment is used	
	1. Check applicable choices:	
	a. ___Heat Resistant Gloves	
	b. ___Leather Gloves	
	c. ___Vinyl Gloves	
	d. ___Other	
	2. Fire Extinguisher	
	3. Hearing Protection	
	4. Hard Hats (if crane operation is required)	
B.	Verify that the calibration dates are valid/current. Records of these activities are maintained in the Large Oven User's Log Book	
	1. Missile-grade air pop-off valve	
	2. Overhead crane proof load (If Required)	
	3. Data acquisition system (Molytek Chart Recorder, Omron Controller)	
C.	Verify proper control panel operation	
	1. Verify proper digital display on Molytek Chart Recorder	
	2. Verify Omron controller is functioning properly	
	3. Verify adequate paper supply for the Molytek Chart Recorder	
D.	Verify Vacuum pump is operational (If Required)	
	1. Verify the Vacuum pump is turned on and running	
	2. Check Vacuum pump oil level	
	3. Inspect for any leaking Vacuum oil	
E.	Verify proper operation of oven platform (If Required)	
F.	Verify that the missile grade air supply pressure is > 70 psig (If Required)	
G.	Inspect the oven door seal to verify that there are no damaged areas that would affect the seal of the door to the oven	

Post-operational Inspection Sheet

Date: _____
Cycle: _____

		Operator Initials:
1.	Verify that the safety equipment is put away.	
2.	Verify that the equipment platform is inside the oven.	
3.	Verify that the thermocouples are put away.	
4.	Verify that the vacuum hoses are put away.	
5.	With the vacuum valve open, verify that the vacuum line inside the oven has proper flow using the vacuum line test fitting. Close the vacuum valve.	
6.	Verify that the vacuum valve is in the Closed position.	
7.	Verify that the vacuum pump oil level is sufficient.	
8.	Push the "PWR OFF" switch (Red light will come on).	
9.	Verify the oven, Molytek, and Omron are all off.	
10.	Verify the MAIN PWR disconnect is in the "OFF" position.	
11.	Verify that the cure cycle information form, the preoperational inspection form, and the post operation inspection form is properly filled out and entered into the log book.	
12.	Verify that the interior oven light is off.	